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LATE NEWS

Northeast Utilities asked the Federal Energy Regulatory Commission to reconsider some T-access conditions for acquisition of PSNH. Without changes, the deal might fall apart (*EL&P*, 9/91, p.1). **Wisconsin Public Power** Inc. claims, in a FERC filing, that Northern States Power influenced others to not allow WPPI to fully participate in the Mid-Continent Area Power Pool, which saves wheeling costs. The two compete. **NRC staff** OK'd restart of Nine Mile Point 2 Sept. 18, after a shutdown and investigations. p.18.

H-Q, NY delay deal

Soft demand, James Bay, flooding, human rights

NEW YORK—New York Power Authority and Hydro-Quebec agreed to an 11-month delay in signing a 21-year, 1000-MW firm-power contract. They have until Nov. 30, 1992, to review terms.

The contract value to H-Q has been estimated at $12-15 billion.

Circumstances changed since NYPA and H-Q agreed to the deal on April 26, 1989. Demand in New York has grown slower than expected. Additional environmental reviews are required prior to expansion of the James Bay hydroelectric project, which is H-Q's planned supply for the contract.

Cree and Innuit natives oppose the James Bay expansion because of human rights issues and loss of land.

H-Q was to provide 1000 MW to New York starting in 1995, mostly for Long Island and New York City. It would reduce the need for oil-fired capacity.

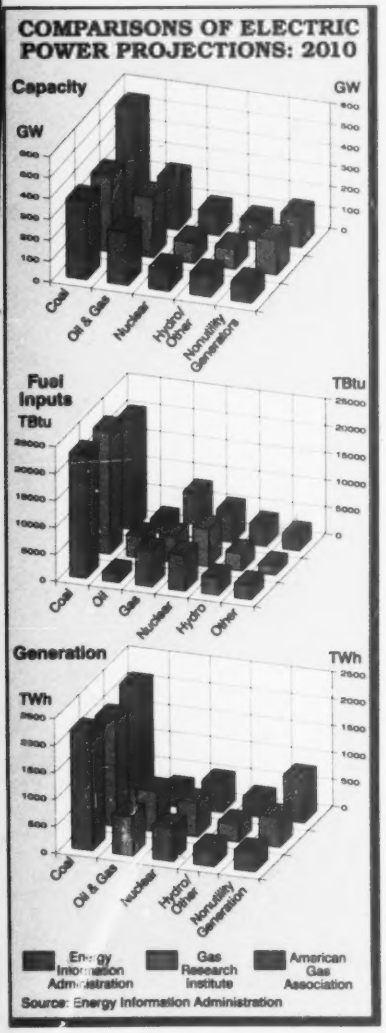
To supply the power, H-Q advanced the due date for finishing James Bay by three years. The next stage would flood about 400 mi^2. A later James Bay stage would flood several times that area. Both add to just a fraction of the 410,000-mi^2 area of the James Bay and Northern-Quebec territory, said H-Q.

A September Canadian federal court decision may delay the part of the project located on the Great Whale River. The court said an independent federal environmental review was needed to satisfy a previous federal agreement with the Cree. An appeal seems likely.

Consolidated Edison Co. and Long Island Lighting Co., which could take as much as 70 percent of the power, had favored the contract extension, as did New York State and City governments. Area demand growth has softened, partly from improving demand-side management and wholesale market.

On Aug. 29, Gov. Mario M. Cuomo directed the New York State Energy Planning Board to develop, by March 1992, an environmental impact statement on the possible effects of cancelling the contract. That board will also evaluate the cost of alternate supply, impacts of Clean Air Act Amendments, fuel diversity, dependence on foreign oil, and alternate demand and supply options.

COMPARISONS OF ELECTRIC POWER PROJECTIONS: 2010



Source: Energy Information Administration

BPA, PacifiCorp agree to construct Third AC Intertie

PORTLAND, OR—Bonneville Power Authority and PacifiCorp agreed to build a $105-million transmission line, the final major phase of the Third AC Intertie Project in the Northwest.

The line, from Eugene to Medford, OR, has a target completion of November 1993. It will add 800 MW to the third Northwest to Southwest link, bringing the total for the third portion to1600 MW, and the total capability of the AC Intertie to 4800 MW.

Negotiations were underway, as of the Aug. 20 announcement, to complete a long-term interconnection agreement between the Northwest and California parties. It would include provisions for operating and maintaining the third link.

Hurricane Bob was here. Above emergency personnel in Boston Edison territory direct residents away from downed lines. Below, in blue, a split pole and tree lean parallel in LILCo's area.

Advance plans helped utilities recover from Hurricane Bob

Cleanup continues after Hurricane Bob caused an estimated 2.1-million power outages, from the Carolinas to Maine, Aug. 18-20. With 138-mph gusts, damage centered on east Long Island north and east through New England.

Various reports from the region indicated that advanced preparations reduced deaths, injuries and damages (*EL&P*, 9/91, pp.1,4), and assisted with recovery.

Significant damage was reported at utilities including Boston Edison, Central Maine Power, Commonwealth Energy System, Eastern Utilities Associates, Long Island Lighting Co., New England Electric System, Northeast Utilities, Public Service Co. New Hampshire, United Illuminating, and UNITIL Corp.

Some accounts likened the worst damage to a war zone.

Utilities having advance notice were able to alert crews in advance of the storm, prepare stockpiles, and make other needed emergency arrangements. Residents were given and most heeded advance notice to move inland.

High tide and Hurricane Bob's arrival coincided in some areas in New England, causing greater coastal flooding and heavy damage to homes, businesses, and facilities near the shore.

New England Power Pool (NEPOOL) reported 1.7-million outages out of 5.95-million customers. "Parts of coastal Massachusetts and New Hampshire got creamed," said NEPOOL's William P. Sheperdson.

Despite that, "Except for Cape Cod outages, most of the load was lost from distribution outages," Sheperdson said. During the storm, NEPOOL's load dropped from 16,137 MW to about 9000 MW. Available thermal units were started before the storm, in anticipation of tripping and possible "islanding," Sheperdson said.

Eight NEPOOL generators totalling 1800 MW were forced off, including two Canal units for 1143 MW; Salem Harbor 4, 430 MW; and Somerset 6, 105 MW. None of the NEPOOL generating outages affected neighboring utilities or pools, he added.

The storm, and sudden loss of load, tripped three 345-kV lines and 27 115-kV lines within NEPOOL.

Commonwealth Energy System's Commonwealth Electric Co., serving the Cape Cod area of Massachusetts, may have gotten hit "the worst of any utility," according to one source.

Michael O'Malley, spokesperson for Commonwealth Electric Co. said the storm hit by 3 p.m. Monday Aug. 19. With all 304,000 customers disconnected, winds in excess of 115 mph, $12-15 million in overhead and underground damages, Bob was three to four times as bad as Gloria.

"There was no doubt about the severity," he said.

O'Malley cited "a tremendous amount of tree damage; the worst I've ever seen, and I've been with the company since 1972."

The state helped clear Cape Cod roads with heavy equipment; 400

Continued on page 8

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NEWS BRIEFS

JILL MINNER, Special Projects Editor

Met-Ed, JCP&L use pumped storage power

Metropolitan Edison Co. and Jersey Central Power and Light Co. signed a three-year contract to receive 172 MW and 140 MW respectively from the Seneca Pumped-Storage Hydroelectric Station. The contract was made between the utilities' parent company, General Public Utilities, and Cleveland Electric Illuminating Co., 80-percent owner of the Seneca plant.

"The pumped-storage operation permits us to produce power to meet peak demand on our system with maximum efficiency," stated Henry L. Robidoux, Met-Ed vice president of transmission and distribution-engineering operations.

MagneTek, Soviets to form joint venture

MagneTek Inc., a power equipment service company, and the Soviet Union's largest power equipment builders have signed an agreement in principle to form a jointly owned subsidiary to be named MagneTek Power Inc. The agreement calls for MagneTek Power to design, manufacture, install and service electric power equipment for utilities and other electric power producers.

The Soviet participants, Electrosila and Leningradsky Metallichesky Zavod, will own 49 percent of the new subsidiary while MagneTek will own 51 percent.

According to MagneTek President and CEO Frank Perna Jr., the agreement will result in the first U.S.-based, Soviet-American joint venture involving a major U.S. corporation. In addition, the agreement paves the way for equity investments between the partners.

MGE appoints officers

Frank C. Vondrasek, president and chief operating officer of Madison Gas and Electric Co., was appointed chairman and chief executive officer of the utility. MGE Senior Vice President and General Counsel David C. Mebane succeeds Vondrasek as president and COO.

Industry awards

Pennsylvania Power & Light Co. and **Pacific Power & Light Co.** have received Edison Electric Institute's 1991 National Land Management Awards for programs that benefit the environment and the community. Pennsylvania Power & Light won in the overall land management category for its implementation of a multi-site land management program that encompasses almost 40,000 acres in eastern Pennsylvania. Pacific Power received a land management project award for its wildlife habitat management program at the Merwin Hydroelectric Project in western Washington.

Detroit Edison Co.'s power plant emissions reduction program earned an environmental achievement award in the National Environmental Awards Council's "Search for Success." The utility was recognized for a 60-percent reduction in power-plant sulfur-dioxide emissions from 1975 through 1990, despite a nearly 20-percent increase in net generation from fossil fuels.

San Diego Gas & Electric Co. won AM/FM International's Pioneer Award at the 1991 Executive Management Symposium for its development and use of an AM/FM system. The utility improves service to customers and delivers collateral benefits to the surrounding communities through data sharing and access.

Consumers Power Co. was honored with a Silver Screen Award by the U.S. Industrial Film and Video Festival for its video presentation on the successful conversion of the Midland nuclear plant to the gas-fired Midland Cogeneration Venture.

Tennessee Valley Authority received the Alliance for Environmental Education's Award for Service for its help in establishing a network of environmental education centers across the nation.

Central Maine Power Co. was named "Cogeneration Utility of the Year" by the American Electrical Engineers' Cogeneration Institute.

FERC may discontinue use of benchmark ROR

In its eighth annual proceeding on the generic determination of rate of return (ROR) on common equity for jurisdictional electric utilities, the Federal Energy Regulatory Commission said it is seeking comments on whether or not it should discontinue the rule.

The benchmark ROR is intended to be used as a guide for parties in rate proceedings and as a reference point for the commission in setting allowed rates of return. FERC however, said it is questioning the rule's usefulness.

ANF buys FPL subsid.

FPL Group Inc., parent of Florida Power & Light Co., has sold one of its subsidiaries, Qual-Tec Testing Services Inc. (QTS), to Advanced Nuclear Fuels Corp. (ANF), a Siemens company. ANF said it will integrate the QTS organization into its nuclear services subsidiary Universal Testing Laboratories Inc. (UTL).

ANF said the acquisition will enhance UTL's ability to provide full-scope in-service inspection services by adding complete testing, refurbishment and visual examination capability for snubbers and pipe supports to the present scope of nuclear plant services.

DOE to sponsor solar car competition

The Department of Energy has announced that it will sponsor an intercollegiate, cross-country solar car competition to be held June 20-26, 1993. The SUNRAYCE '93 course will begin in Dallas, TX, and finish in Minneapolis, MN.

"This competition will serve as a symbol of our commitment, outlined in the President's National Energy Strategy, of encouraging technology that will produce renewable energy that is both practical and affordable to the public," stated Deputy Secretary of Energy W. Henson Moore. "To accomplish this, we need the type of creativity and entrepreneurial spirit that will be brought to this race by the young men and women who enter it."

Up to 36 universities and technical institutes have been selected to participate in the competition, according to DOE. The Solar Energy Research Institute in Golden, CO, will serve as national race headquarters.

Non-licensees now can be fined for deliberate misconduct, says NRC

The Nuclear Regulatory Commission has amended its regulations to make all persons, including non-licensees, subject to enforcement actions for deliberate misconduct involving NRC-licensed activities.

According to the NRC, deliberate misconduct includes: 1) actions that cause or, but for detection, would have caused a licensee to be in violation of any rule, regulation, order or any term, condition or limitation of any license; and 2) deliberate submission of incomplete or inaccurate information to the NRC, a licensee, contractor or subcontractor.

Deliberate misconduct could result in notices of violation, orders and civil penalties for all involved, according to the commission. The amendments went into effect on Sept. 16.

Utilities fined by NRC

The U.S. Nuclear Regulatory Commission recently proposed the following fines:

Carolina Power & Light
A $50,000 civil penalty for alleged violations of NRC requirements at the Shearon Harris nuclear power plant. The penalty was proposed because plant personnel failed to maintain two operable reactor trip system instrumentation channels, and did not ensure that operations personnel were properly notified prior to placement and removal of electrical jumpers during system testing.

Florida Power and Light
A $37,500 civil penalty for alleged violation of NRC requirements at the St. Lucie nuclear power plant. The penalty was proposed due to problems with the containment spray systems in Unit 2.

Houston Lighting & Power Co.
A $75,000 fine for violations of requirements at the South Texas Project. The action involved a system which the NRC requires pressurized water reactor plants like STP to have. In Units 1 and 2, both systems had been shut down 36 percent and 15 percent of the time respectively, while the plant was above the 40-percent power level.

New York Power Authority
A $137,500 fine for alleged violations related to the inadvertent and unmonitored release of low-level radioactive material from the James A. FitzPatrick Nuclear Power Plant.

Northeast Nuclear Energy Co.
A $50,000 fine for failing to follow written procedures at the Millstone Unit 1 Nuclear Power Station. The procedures require the shift supervisor to shut down all four circulating water pumps whenever control room indicators show too great an increase of water pressure building up.

Public Service Company of Colorado
A $62,500 fine for violations of NRC radiation-protection requirements at the Fort St. Vrain nuclear facility. The action was taken because of an incident involving low-level radiation exposures to a mechanic and a health physics technician.

Tennessee Valley Authority
A $75,000 civil penalty for alleged violation of NRC requirements at the Browns Ferry nuclear power plant. TVA was penalized after both Unit 2 drywell personnel access doors were open at the same time for about four hours, resulting in a loss of containment integrity while the reactor's fission process was operating.

Vermont Yankee Nuclear Power Corp.
A $75,000 fine for alleged safeguards violations at the Vermont Yankee plant. According to the NRC, the plant's Central Alarm Station Operator failed to respond to an alarm in accordance with the plant's security plan.

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COMMENTARY

Competition: An opportunity or long-term threat?

One of the recent developments affecting the electric utility industry has been the recognition of competition as a proper factor in the electric power supply business. No longer is an electric utility's service territory seen as a natural monopoly by opposition forces. State and federal commissions increasingly see competition replacing the rules and regulations that have circumscribed utility operations for decades.

Utility executives have mixed views about competition. Many point out that electric utilities have competed for years against other energy sources.

Others argue that they are ready to compete...against anyone, anytime... but that the playing field should be made level. These see competition, as defined in recent regulatory decisions and position statements, too-often meaning non-utilities are free to go after utility customers and business, but that utilities can't fight back in-kind.

These executives want to have the same freedom to compete with non-utilities for power supply contracts in their own service territories and elsewhere. They want to compete on whatever level is required in return for giving up the protection built into the regulatory contract.

Utility theorists argue that no longer is their a natural monopoly associated with utility service. This is at the heart of the current debate raging over transmission access. Current legislation would give non-customers equal rights with, and in some cases primary rights over those of customers whose rates have paid for the transmission system in question. Clearly, the playing field has been slanted against equal utility competition.

Another, and perhaps even more insidious threat to the sanctity of utility existence, as we know it, comes from offshore. Consider that in recent years, large generation projects have been cooperatively developed. Participants may involve an architect/engineer, equipment manuafacturer, construction company, financial organization and the utility. The first four design and build the plant and the utility operates the plant and has rights to the power produced. In the future, however, all those services may be offered to utility *customers* at very favorable rates by an offshore supplier that is not bound by American utility regulation or anti-trust law.

Consider a company...say one like Mitsubishi of Japan. Here is a giant corporation with a variety of subsidiaries and enormous capabilities: A design/engineering/construction company, a large turbine-generator manufacturing company, a company that makes power delivery and industrial utilization equipmemt, a control systems company and one that is involved in international finance, to point out only a few. As Professor Art Thompson of the University of Alabama observed at the Utility Purchasing Management Group meeting in Denver in mid-September, "Don't you suppose that Mitsubishi just might be able to work out favorable cost/price arrangements between each of its many parts so as to allow it to be the low bidder whenever it wants?"

Certainly a single integrated, multi-functional non-U.S. organization free of all the laws and regulations defining domestic business relationships would be more cost-effective than a loosly formed project-development group of U.S. firms, each of which is seeking to maximize its profit potential. Free of the regulatory rules that limit electric utility operations, it should be able to substantially undercut the utility's charges for energy to prime large customers. Individual utilities could suffer the erosion of large chunks of their profitable core business, leaving them the higher cost-of-service, lower-margin customers. Such utilities can be faced with increasing costs and be forced to seek higher rates, which will make them even less competitive.

There's no question that competition is a fact of life today for utilities. But if they are to be thrown into the competitive arena, then they should be allowed to utilize all possible creative solutions to the problems posed.

If competition is to be the law of the land, so be it. But let's be sure that all competitors...including electric utilities...have the same opportunities and freedoms to compete evenly.

Robert A. Lincicome, Editor-In-Chief

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FPC wants to build; plants close; compressed air storage; t-line

Supply/delivery roundup

Florida Power Corp. plans to meet load growth through the 1990s by building 1708 MW of generation, implementing 1445 MW of demand-side management, and purchasing 751 MW of non-utility generation and 400 MW of out-of-state power.

A Polk County site has been selected for the construction of the new plants. Florida Power said it would explain—at the state regulatory hearing to determine the need for generation—that it should build and solely control the 1708 MW of generation, said Mike Foley, Director of System Planning.

"We feel we have a well-balanced generation mix of purchased power, demand-side management, energy efficiency programs and our own power generation," Foley said.

New England utilities ageed to close seven Northeast Utilities (NU) generating units two years early due to slower-than-expected regional demand growth since 1987.

Shutdowns began Sept. 1 on Connecticut Light & Power Co.'s 69-MW Middletown Unit 1 and Devon Units 3, 4, 5, and 6 for 222 MW. Also closed was Western Massachusetts Electric Co.'s West Springfield Units 1 and 2 for 96 MW. All were oil-fired; the units' start dates ranged from 1942 to 1954.

NU had originally planned to retire Middletown and Devon units in early '87. Due to tighter regional capacity forecasts, New England Electric System's New England Power Co. and Commonwealth Electric System's Canal Electric Co. agreed in 1987 to compensate NU for reactivating the Devon units and help pay for operating the seven units for six more years. NEP contracted for 245 MW, about 58 percent of the output; Canal about 17 percent; and NU retained 25 percent.

Even with payments to NU for costs associated with the early shutdown, NEP said it expects customers to save $18 million over 20 months through April 1993.

NU's CL&P and WME also agreed to the shutdowns.

Alabama Electric Cooperative's compressed air energy storage plant, the first in the United States, went commercial, reaching full power generation of 110 MW on natural gas.

The plant stores compressed air in a 19-million-ft^3 salt cavern during off-peak hours and releases it to a gas-turbine generator during peak generation periods. The plant, designed to operate unattended, uses a distributed control system with microwave links to AEC's off-site dispatch center.

Electric Power Research Institute co-sponsored and partly funded the project. Burns & McDonnell Engineers-Architect-Consultants, based in Kansas City, MO, prepared turnkey specifications, helped evaluate bids and serves as AEC's engineer.

Consumers Power Co. said the Federal Energy Regulatory Commission denied a rehearing request contesting the interconnection agreement between CP and PSI Energy Inc. of Indiana. David V. Voigt, CP's vice president of electric transmission, called the denial "an important step" toward commercial operation for the 345-kV line by 1993. CP is still acquiring land for its $125-million, 60-mile portion of the project, and needs state regulatory approval.

Michigan Residents Against Giant Energy Inc. (RAGE) and the Michigan Municipal Cooperative Group (MMCG) were intervenors. MMCG wants "joint utility planning and transmission-line ownership to address Electric and Magnetic Field (EMF) concerns by minimizing the number of transmission lines needed."

Survey cites 104,201 MW in bids in 7 yrs

WASHINGTON—In the past seven years, there's been 1344 supply-side bids for 104,201 MW of capacity. Forty-two solicitations had winners totalling 315 projects, for 11,946 MW.

Capacity in the request for proposals (RFPs) exceeded capacity sought from 1.5 to 42 times, for an average response of 10 times what was sought.

These figures, from a National Independent Energy Producer (NIEP) study, show the popularity of bidding in recent years as a method of procurement.

Since 1984, 36 states have adopted or are considering adopting bidding guidelines, the NIEP study said. In states without bidding rules, 12 investor-owned utilities issued 17 RFPs.

In addition, three municipal utilities, four public power agencies, seven rural electric cooperatives, and three government entities have issued RFPs.

Virginia was named the largest bidding market. Virginia Power sought more than 4100 MW, 1986-90.

The study, "Competing for Power: A Survey on Competitive Procurement Systems and Blueprint for the Future" was assembled with NIEP staff, a review panel and Hope Robertson, the publisher of *Robertson's Current Competition* newsletter.

Natural gas and coal technologies account for 8266 MW, or 68 percent of megawatts awarded as of May 1, 1991.

Renewables, including hydro, geothermal, resource recovery, wood and other biomass, account for 2106 MW or 16.8 percent. (The table percentage differs due to "Other" designation.)

"Independent electric power generators, such as companies which make up the National Independent Energy Producers, have brought 50 percent of all new capacity since 1989," said Robert T. Sherman Jr., NIEP vice chairman and vice president of Cogen Technologies Inc. of Houston, TX.

Fuel Mix of Awarded Bids (%)	
Natural Gas	46.2
Oil	2.8
Coal	21.8
Renewables*	17.3
DSM	1.9
System Sales	3.3
Other	6.7
Total	100.0

*And municipal waste

Of 172 of these projects chosen by utilities and state regulators through bidding, more than 85 percent, almost 9300 MW, were successfully under development, under construction or operating, Sherman noted.

For more information contact NIEP, 601 13th St., NW, Ste. 320S, Washington, DC 20005; phone 202/783-2244.

Correction

EL&P, 9/91, p.18, incorrectly named Boston Edison Co. as a utility that had upset some bidders by choosing less capacity than originally planned from a demand-side request for proposals. New York State Electric & Gas Co. was the utility.

1991 6-month financings lag 6% behind 1990

ATLANTA—Investor-owned electric utility financings for the first six months of the year barely topped $4 billion, 5.55 percent less than the same period in 1990, $4.24 billion, according to Ebasco Service Inc.'s "Analysis of Public Utility Financing."

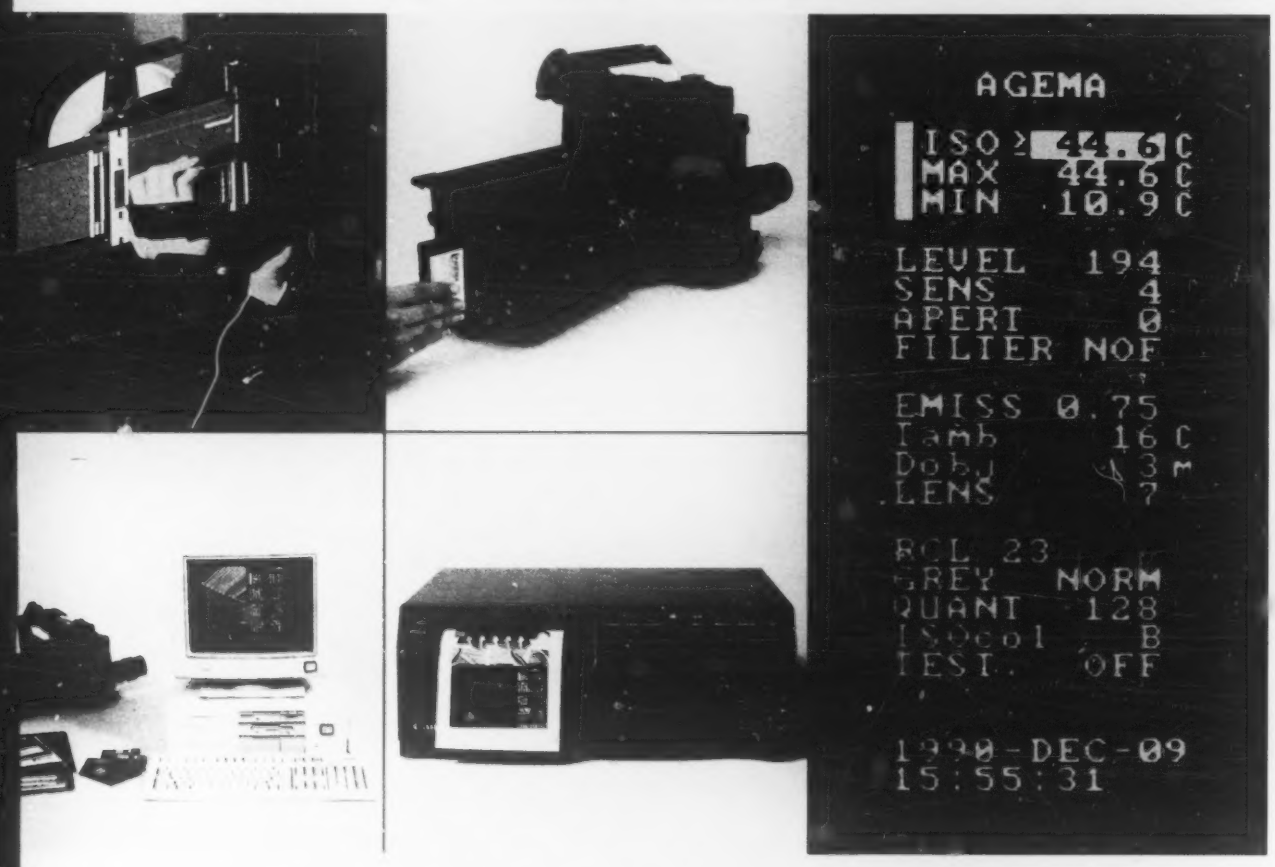
Refundings, 35 percent of the total at $1.4 billion, increased by 17 percent over 1990. New money accounted for 65 percent of the financing, compared to 72 percent last year (see table).

Long-term debt made up 74 percent of the total, compared to 97 percent last year. Preferred stock made 8 percent of the total, up from just 2 percent; common stock increased to 18 percent of the total, up from just 1 percent.

Offerings of Securities by Investor Owned Public Utility Companies ($000)

	January 1, to June 30, 1991 Electric	% of Total	January 1, to June 30, 1990 Electric	% of Total	6 Months Change '90 - 91
Long Term Debt	2,951,330	74	4,130,836	97	-29
Preferred Stock	315,000	8	75,000	2	320
Common Stock	738,476	18	34,125	1	2064
Total Financing	4,004,806	100	4,239,961	100	-6
By Type of Sale					
Public	3,829,806	96	4,143,961	98	-8
Private	175,000	4	96,000	2	82
By Purpose of Sale					
New Money	2,603,806	65	3,039,961	72	-14
Refunding	1,401,000	35	1,200,000	28	17
By Method of Sale					
Competitive	1,075,000	27	1,280,000	30	-16
Negotiated	2,754,806	69	2,863,961	68	-4
Private	175,000	4	96,000	2	82

Source: EBASCO Services Inc.



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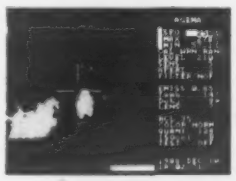

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Philadelphia Electric decentralizes power; MR looks for merger

One utility is decentralizing, while another seeks to consolidate operations.

Philadelphia Electric Co. decentralized electric and gas utility operations Aug. 9-12, in what it called its "most dramatic organizational transformation in more than 50 years."

The move was to bring operations closer to customers.

Joseph F. Paquette Jr., chairman and CEO, said, "Reorganization represents another step in our strategic plan to change Philadelphia Electric Company into a strong, competitive utility whose emphasis is on achieving superior customer satisfaction."

The move gives division general managers direct responsibility and accountability for quality and reliability of electric and gas distribution and for satisfying customer needs, concerns and complaints. These have been centralized at PE since prior to WWII.

Customers were notified of the realignment in various ways, including letters and individual notices from division general managers, bill inserts and briefings from community affairs and customer operations personnel.

An internal review prompted the changes, PE noted.

Consolidation sought

Midwest Resources, based in Des Moines, IA, announced intentions to merge utility operations of Iowa Power, IPS Electric and the gas service of Midwest Gas under Midwest Resources for operating efficiencies and financial savings.

The merger depends on approvals from state regulators in Iowa and Minnesota, the Federal Energy Regulatory Commission, and preferred shareholders of Iowa Power and Iowa Public Service Co.

Move anticipated

The move was anticipated following the previously reported merger of Iowa Resources and Midwest Energy, the holding companies of the two electric utilities.

Top 100 corrections

BARRINGTON, IL—Changes and corrections must be made to the Top 100 report printed in the August issue (pp.17-21).

The 1990 heat rate in Table 6 for Atlantic Energy was actually 10,602 Btu/kWh, which moves the utility to the No. 48 position in the table.

In Table 4, Colstrip-1 drops out of the list, since its correct heat rate was above 10,000 Btu/kWh. Thus, Comanche Power-1 becomes the No. 1 unit.

American Electric Power's Cardinal-1 and Big Sandy-2 become Nos. 3 and 4 (after renumbering the table) with heat rates of 9049 and 9061 Btu/kWh, respectively. New England Electric's Brayton-3 unit, with a heat rate of 9174 Btu/kWh, becomes No. 6. New York State Electric & Gas' Somerset-1 becomes No. 9 at 9228. AEP's Clinch River-2, Cardinal-2 and Big Sandy-1 become Nos. 14, 17 and 18, respectively, with rates of 9266, 9303 and 9305.

In Table 5, Commonwealth Energy, with a heat rate of 9614 Btu/kWh, should be added in as No. 2 (after renumbering); American Electric Power, at 9646, as No. 3; and Detroit Edison, with a rate of 9793, should be added in as No. 4. Florida Progress's heat rate was really 9821 Btu/kWh, moving it up to No. 6.

HENRY STEIN, Senior Editor-Generation

NRC is thoroughly investigating failures at Nine Mile Point Unit 2

Henry Stein
Senior Editor—Generation

A second, more in-depth Nuclear Regulatory Commission probe into Aug. 13 failures, control-room blackout and emergency shutdown at Nine Mile Point nuclear Unit 2 could reveal equipment or design flaws that might lead to changes in similarly designed plants.

The NRC said it upgraded the Nine Mile Point investigation because of the potential implications of multiple failures of power supplies on other reactor facilities with similar configurations. The in-depth probe was to concentrate on a detailed review of the electrical systems design, equipment response to the electrical disruption, and challenges the electrical system failure placed on the operating personnel.

Niagara Mohawk agreed not to restart the plant until receiving approval from the administrator of NRC's Regional Office at King of Prussia, PA.

As of mid-August, the 1705-MW, two-reactor plant on Lake Ontario near Oswego, NY, was still in a cold shutdown condition, even though there had been no damage to fuel or release of radioactivity.

The NRC originally sent a seven-member Augmented Inspection Team (AIT) to the plant. That team's investigation prompted NRC's James Taylor, executive director for operations, to form a more specialized investigative group, an Incident Investigation Team (IIT). The IIT went to the plant to assure that the commission gets "a more thorough understanding of what happened at Nine Mile Point," according to Taylor.

What did happen at the plant

At 5:48 a.m. on Aug. 13, Transformer 1B faulted internally due to unknown causes. This caused a power surge that tripped the main turbine and initiated a scram for the boiling-water reactor.

When normal station power automatically transfered to reserve power, several uninterruptable power supplies failed. These failures resulted in loss of control room annunciators, instruments, computers and lighting.

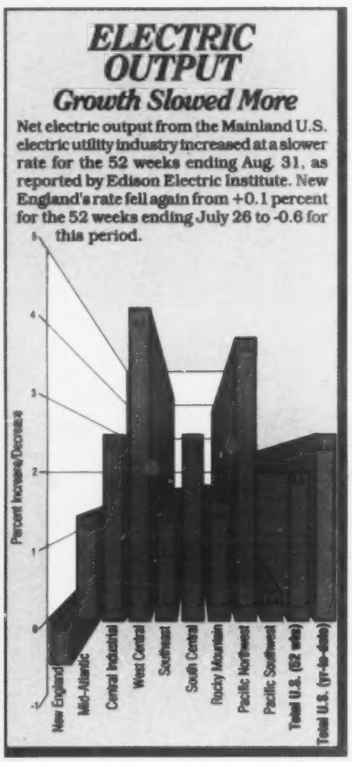
Because of the control room losses, the operators could not directly control the unit, verify that the reactor protection system had actuated, nor that control rods had automatically inserted to shut down the reactor. Using independent instrumentation, operators monitored the unit and, as a precaution, manually scrammed the unit's reactor.

Plan worked, but...

The AIT investigation found the emergency plan had been effectively implemented and emergency responses taken were adequate to protect public health and safety. In recognition of this, B. Ralph Sylvia, executive vice president of nuclear operations for Niagara Mohawk stated, "I am very pleased with the response of our people and those who assisted us in our emergency plan."

However, NRC's Taylor said that several aspects of the power loss required closer examination to assure understanding of generic technical and operational implications, so he formed and dispatched the IIT.

An AIT focuses on licensee performance, noted the NRC. An IIT, conversely, concentrates on generic implications, including adequacy of regulatory requirements and guidance. In this case, the IIT is closely examining the loss of five uninterruptible power supplies and emergency lighting in some parts of the plant.


ELECTRIC OUTPUT
Growth Slowed More
Net electric output from the Mainland U.S. electric utility industry increased at a slower rate for the 52 weeks ending Aug. 31, as reported by Edison Electric Institute. New England's rate fell again from +0.1 percent for the 52 weeks ending July 26 to -0.6 for this period.
Percent Increase/Decrease
New England
Mid-Atlantic
Central Industrial
West Central
Southeast
South Central
Rocky Mountain
Pacific Northwest
Pacific Southwest
Total U.S. (52 wks)
Total U.S. (yr-to-date)

World nuclear events may hurt future U.S. programs

WASHINGTON—Things are happening in other countries that may have a profound effect on how electricity is produced in this one. But the pictures from abroad are not always clear.

Just hearsay?

The first inkling of problems came from stories about safety from recent Cuban refugees who had worked on the Soviet-built reactors in that Caribbean country, as reported in the British publication *Electrical Review*.

If anything catastrophic did take place with the Cuban nuclear plants, it would almost certainly put another long delay into any plans for nuclear usage in the U.S., if not kill some plans entirely for the foreseeable future—even more so than the incident at Chernobyl. The U.S. would be the first and most severely impacted country, after Cuba itself, to receive any radioactive fallout.

Senate hearing

Consequently, on July 25, the U.S. Senate Subcommittee on Nuclear Regulation held a hearing about the nuclear plant situation in Cuba, Eastern Europe and the USSR.

In testimony before the subcommittee, Senator Bob Graham (D-FL) stated, "Nuclear safety is an international issue...An accident at any reactor in any country can affect the health and economy of other countries."

The senator described two Cubans who had worked at nuclear power plants under construction there and had recently defected. One was a geologist and the other a quality control inspector for welds. They reported *significant* deficiencies in materials and construction practices.

Graham said the United States should "support and encourage international efforts to inspect the Cuban plants" and "international technical assistance to Cuba so that the plants are built and operated safely."

Soviet design shortcomings

He then switched the subcommittee's attention to the Soviet-design reactors in the Soviet Union and Eastern Europe. He pointed out the lack of basic safety features and equipment, and the poorly trained operating personnel.

Graham noted that problems in design, construction and operation of four reactors in Bulgaria were so bad that the International Atomic Energy Agency (IAEA) recommended they be shut down, which he declared was an unprecedented step for the IAEA. He also reported that the four reactors of similar design in the former East Germany were shut down soon after German reunification because of safety concerns, and the Soviets themselves closed down two more in Armenia. (*EL&P*, 6/91, p.26)

A visitor's viewpoint

William S. Lee, chairman and president of Duke Power Co., first chairman of the Institute of Nuclear Power Operations and first president of the World Association of Nuclear Operators, reported to the subcommittee on his October 1989 visit to the Juragua Nuclear Station in Cuba, which was under construction, and to "a number of laborato-

Continued on page 20

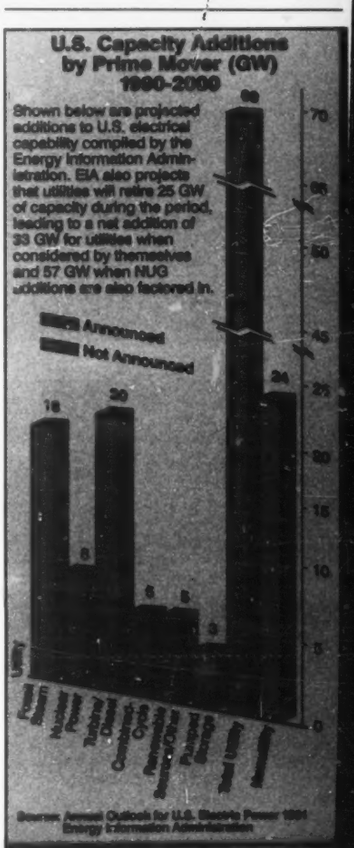
Navajo owners agree to limit SO_2 emissions sharply

PHOENIX—Owners of the Navajo Generating Station have signed a Memorandum of Understanding to install flue-gas scrubbers to help reduce haze in the Grand Canyon. The scrubbers will be able to remove 90 percent of the sulfur dioxide emitted by the plant, and the first of three must begin operation by Nov. 19, 1997; the last by Aug. 19, 1999.

The agreement was announced by Governor Fife Symington of Arizona on Aug. 8. In announcing the Memorandum, he stated, "Salt River Project, the Grand Canyon Trust and the Envi-

Continued on page 22

The Navajo Generating Station will have $430-million worth of scrubbers added to its stacks to reduce SO_2 emissions that are blamed for part of the haze problems in the Grand Canyon.


U.S. Capacity Additions by Prime Mover (GW) 1990-2000
Shown below are projected additions to U.S. electrical capability compiled by the Energy Information Administration. EIA also projects that utilities will retire 25 GW of capacity during the period, leading to a net addition of 33 GW for utilities when considered by themselves and 57 GW when NUG additions are also factored in.
Announced
Not Announced
18
29
8
6
6
3
58
24

1991 Electric Utility AM/FM report shows strong market

ROSEVILLE, CA—CSR Inc.'s 1991 Electric Utility AM/FM report lists a total of 234 projects valued at over $465 million.

The projects will be bid over the next 30-month period from July 1991 through December 1993.

The report includes detailed information about both new projects as well as additions to existing systems (see table).

Data was obtained from over 1300 utilities throughout the U.S. and Canada during the study which was conducted from March to July.

The report also contains an overview and analysis of the market, including size and trend information, market segment analysis, and leading vendors' market share.

AM/FM projects scheduled through 12/93:

	New Projects	Updated Projects	Total Projects	Project Cost
Systems	83	151	234	$107,357,000
Hardware/Software	92	63	155	60,584,000
Conversion	109	103	212	298,815,000
Consulting	22	16	38	2,595,000

Ten tables in the report includes the following data:

- System projects listed alphabetically by utility name, chronologically by specification release date, by budget size, and by state/province.
- Conversion projects listed alphabetically by utility name, chronologically by specification release date, by budget size, and by state/province.
- Hardware/software add-on projects.
- Consulting projects.

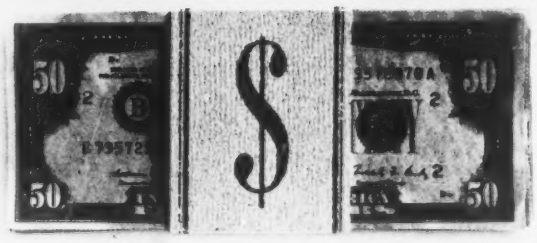
Electronic version

An electronic format of the report permits tracking the progress of projects and performing customized sorts and queries using a PC. The data are a subset of the master database and uses dBase III software.

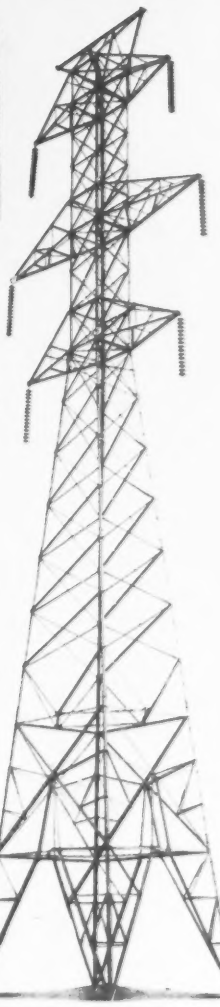
For additional information, contact: CSR Inc., One Sierragate Plaza, Suite 270-C, Roseville, CA 95678; Ph. 916/773-3344; fax 916/773-4388.

IT ONLY TAKES A FEW MILLISECONDS TO FULLY APPRECIATE BATTERY ENERGY STORAGE SYSTEMS.

With a battery energy storage system (BESS), the response to fluctuations in demand is virtually instantaneous. The result: greater system stability.



BESS can help defer the costs of new transmission and distribution equipment by increasing the load factor of your intermediate generators or by storing energy near the load.



BESS is modular; simply add lead-acid battery modules to meet demand in local areas. It's much easier than adding transmission towers.

It's easy to site BESS almost anywhere. For example, it can be placed within a utility plant, or remotely in a high demand area.

No noise. Virtually no emissions. Completely recyclable materials. BESS can be very good for the environment.

Save fuel. Improve system efficiency by letting BESS provide spinning reserve. At the same time, your generator can operate at its most efficient loading.

Keep your cool at peak demand. BESS can be recharged at night and discharged during the afternoon.

To be precise, we'll need about 1/30 of a second. It only takes a single cycle for a battery energy storage system (BESS) to respond to demand. It doesn't take much longer to appreciate the other benefits of battery energy storage technology either.

To find out about all the ways that BESS can help you, call us at 1-800-551-BESS for more information and a copy of our brochure before another millisecond slips by.

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The Energy Management Consortium, P.O. Box 12036, Research Triangle Park, NC 27709 1-800-551-BESS.

Inquire R.S. 17

System reads meters in remote locations

LAFAYETTE, IN—Landis & Gyr agreed with Equimeter Inc. and Sensus Technologies to develop the TouchRead remote meter reading capability for the electric utility industry.

TouchRead provides hard-to-read meters with a remote reading communications port called a TouchPad. The meters are then read by touching the tip of a reading gun to the remote pad. The meters are instantly interrogated and the readings electronically transferred in less than 2 sec to a handheld reading terminal.

Landis & Gyr will develop an encoder register for its electric meters. When interrogated, the electronic register will output an ASCII message containing the meter kWh reading, serial number and tamper indication.

The TouchRead meters can be upgraded to automatic meter reading.

NIPSCO installs fault-tolerant EMS

MAYNARD, MA—Northern Indiana Public Service Co. plans to install the first *fault-tolerant* SCADA/EMS (Supervisory Control and Data Acquisition/Energy Management System).

The system will be based on Digital Equipment Co.'s VAXft fault-tolerant platform and will be integrated and installed by the Utility Automation Unit of Johnson Yokogawa Corp., Carrollton, TX.

The fault-tolerant system, which has online upgradability, means no system downtime and continuous processing with no loss of work-in-progress during system maintenance.

The system can detect, isolate and bypass a fault without human intervention, significant delay in service, significant reduction in performance, loss of work submitted by users, or loss of data integrity.

The system implements redundancy through fully duplicated hardware, including processor modules, memory and disk storage, and Ethernet links. It is designed for immediate response to any component failure to ensure no disruption of computing operations or interuptions of NIPSCO's ability to supply electric power to customers.

"Demands for EMS computers are increasing," said NIPSCO Director of Operations Robert Kramer, "and we're seeing a tightening of power generation and transmission funding and anticipate more demand for electricity in the future. The question is how to assure continued power quality and reliability to the customer."

William Tweddle, who heads Johnson Yokogawa's Utility Automation Unit said, "Fault-tolerant computing is a logical outcome of advanced technology. It replaces the traditional dual-redundant configurations we've been using for over 20 years to deliver higher levels of availability."